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  	<h1>Monthly News Letter</h1> <h2>Bureau of Agricultural Engineering</h2> <h3>U. S. DEPARTMENT OF AGRICULTURE</h3> <p>For Bureau staff only. Not for publication.</p>		
	       		

Vol. 7

February 25, 1938

No. 6.

R. L. Parshall reports that the test apparatus to demonstrate the working principle of the acre-foot integrator for measuring stream flow has been put into operation and at this time the possibilities of developing a practical instrument appears to be promising. This instrument, when built, will indicate the time, hours and minutes, on an ordinary clock dial; a revolving indicator will show the rate of discharge in second-feet, either for a standard weir or Parshall measuring flume for any particular size; and on a series of dials will indicate the total acre-feet as a summation of the flow.

Tests made by A. A. Young during the past year in the vicinity of Pomona, Calif., indicate that the rate of evaporation from a screen-covered evaporation pan 2 feet in diameter equalled almost exactly that from a 12-foot pan, showing that the screen-covered pan is suitable for direct measurement of reservoir evaporation without using a reduction coefficient. Somewhat similar results were obtained from the same type of pan in the Imperial Valley at Bard, Calif., indicating that this pan may become useful in desert as well as coastal climates.

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: The President has approved the following schedule of :
: holidays affecting Federal employees during the remainder :
: of the calendar year 1938: May 30, July 4, September 5, :
: November 24, December 26. :
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: Inasmuch as Christmas this year and New Year's day, :
: 1939, fall on Sunday, the morning half days of December 24 :
: and December 31, will be included in the above schedule of :
: holidays. :
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Harry G. Nickle spent a week at Woodward, Okla., where topography was taken of a proposed dam site near Woodward for the Bureau of Plant Industry. Other data relative to watershed area, foundation, labor costs, materials for dam, etc., were also obtained. The topographic map was completed the following week and mailed to Washington, with other pertinent data in regard to construction of a dam at this location.

Data compiled by Leslie Bowen at the Scottsbluff, Nebr. experiment station during the past season on use of water by corn and beans from different depths of soil, indicate that the beans drew 52.2 percent of

the water they used from the first foot, 22.8 percent from the second, 16.3 from the third, and 8.7 from the fourth foot. For corn the corresponding percentages were 68, 17.2, 9.8 and 5.

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Karl Harris was called upon by members of the St. David (Arizona) Irrigation District to assist them in the solution of problems connected with assessments against landowners for construction of a dam to impound irrigation water, there being a conflict between ownership of land and ownership of water stock. Mr. Harris recommended that the District do the work and that assessments be made on an acre basis. This recommendation was adopted and work on the dam, which had been suspended because of the conflict, was resumed.

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Upon request of the U. S. Forest Service, Harry F. Blaney reviewed the preliminary draft of the Kings River and Merced Area (Calif.) flood control reports. He also obtained from engineers and water company officials of various San Joaquin Valley communities, and from the State Engineer's office at Sacramento, data on ground-water fluctuations in San Joaquin Valley. While in Berkeley, he conferred with Messrs McLaughlin and Mitchelson and other members of the Flood Control Committee, regarding present and future studies on various watersheds in California. Estimates were made of the cost of completing such surveys in California prior to July 1, 1938.

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Under the snow survey and irrigation water supply forecasting project, mimeographed reports of snow measurements as of about January 1, on snow courses of the Western States network were prepared and distributed to cooperators and other interested parties, including railroad and chamber of commerce officials. Weekly reports of conditions in the various watersheds, for winter sports, were prepared and broadcast. Considerable use was made of short wave radio, in Oregon, for reception of snow observations from isolated observers, and in connection with routine matters relating to snow survey work and snow sport information. R. A. Work made arrangements for a Universal News-Reel photographer to accompany a snow survey crew to Seven Lakes this spring if snow conditions are favorable for good pictures. Mountain fever vaccine was distributed to 65 cooperators or field snow survey observers, at their request.

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J. C. Marr, L. T. Jessup, and R. A. Work attended a joint meeting of the Hydrology Section of the American Geophysical Union, and the Western Inter-state Snow Survey Conference at Davis, Calif., January 7-8.

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A paper entitled "Work of the CCC Drainage Camps" by John G. Sutton, was presented at the Illinois Society of Engineers' fifty-third annual convention held at Peoria, Ill., January 27 through January 29. The paper was read by Mr. Carlisle Pemberton, Engineer of the Tuscola, Illinois, Drainage Camp, in the absence of Mr. Sutton, who was unable to attend.

Despite unfavorable weather conditions, the January excavation and embankment production of the Central District drainage camps totalled $3\frac{1}{4}$ million yards. This is the highest January yardage production since the establishment of the drainage camps.

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Dr. Imre de Razso, Assistant Professor in the Royal Hungarian Academy of Agriculture at Magyarovar, Hungary, spent a few days in Washington discussing with various engineers of the Bureau matters of mutual interest in agricultural engineering. He left Washington Feb. 13 for an extended trip throughout the United States to visit various agricultural experiment stations, rural electric projects and farm machinery manufacturers.

G. A. Cumings attended the annual meeting of the Association of Southern Agricultural Workers at Atlanta, Ga., February 2-4. He also conferred with several implement manufacturers and representatives of cooperating experiment stations relative to fertilizer placement research. Experiment stations in their endeavor to use improved methods of fertilizer application in field experiments recognize the importance of agricultural engineering in developing suitable equipment. Improved fertilizer machinery for cotton is now on the market in the 2-horse and tractor types, but fertilizer placement equipment for the single-row walking-type machines, although available in several new designs, is still in the experimental stage.

At Davis, Calif. construction of a 4- or 6-row, single seed sugar beet planter is underway. This planter will be used to test the method of planting in connection with mechanized thinning on field plots this spring.

A seed metering device directly attached to the disk furrow opener for a beet drill has been built by E. M. Mervine. The purpose of the device is to maintain a steady flow of individual seeds delivered so close to the furrow that they are placed at regular intervals in the soil. This is accomplished by having seed cups directly attached to the rotating disk which picks up its seeds from the reservoir between the disks. Its simplicity apparently makes it valuable for other seed.

On January 28, O. K. Hedden left Toledo by truck with experimental burning equipment for Florala, Ala., to assist in preparation for experimental work on the control of the white fringed beetle.

On January 17 R. M. Merrill discussed the experimental work on pest control at Columbus, Ohio, before the Columbus Entomological Society.

E. M. Dieffenbach was at Salt Lake City on February 3 for a conference with officials of the Indian Service, Department of the Interior, regarding problems of weed control.

A further analysis of the apparent specific gravity determinations from samples taken at the Prattville Field shows that 1936 and 1937 data are much the same although a smaller number of samples were analyzed in 1936. E. D. Gordon has found that the data for the two years have the following points in common: the apparent specific gravity determinations from samples taken after planting have a better inverse correlation to the yield of seed cotton than those taken after harvest; the apparent specific gravity of all the plots studied averaged lower after harvest than after planting, the spread ranging from .06 to .08 apparent specific

gravity; considering the statistical trend which the data produce zero yield of cotton would be obtained when the apparent specific gravity of the soil approaches very nearly that of the parent rock; the slopes of the lines of trend for the "after planting" data are very nearly the same, however, the average yield for 1936 was lower than for 1937.

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Max J. La Rock, who has represented the Bureau on the cooperative investigations of farm housing at Madison, Wisconsin, has resigned effective March 2, to become extension agricultural engineer for the University of Wisconsin. E. G. Molander, left February 20 for Madison to study the data so far obtained and assist in the preparation of a report of the work.

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On January 28, 29 and 30, Messrs. Ashby, Lyle, and T. A. H. Miller, attended a conference at Atlanta to select plans for the farm building plan exchange for the southern states. Representatives from the agricultural engineering departments of the following states were present: Alabama, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Virginia. The agricultural engineers were assisted in the selection of farmhouse plans by home economists from Alabama, Florida, Georgia, South Carolina, Tennessee, and the U. S. Department of Agriculture.

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On February 1 Mr. Ashby and Mr. Miller visited the cooperative farm housing project at Athens, Georgia. W. V. Hukill spent several days in Athens with Mr. Simons. Some preliminary tests were made on the eupatheoscope which was constructed at Arlington Farm. This instrument is intended to give a measure of the comfort conditions in houses. The one-room test houses at Athens were heated by kerosene stoves. There was a large variation in temperatures from floor to ceiling in all the houses.

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Publications issued: Technical Bulletin 578 "Spreading Water for Storage Underground", by A. T. Mitchelson and Dean C. Muckel.

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